



Senstar Crowd Detection  
2.x  
User Guide



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# Introduction

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Senstar Crowd Detection is an embedded video analytic that offers crowd detection, event triggering, and alarms for Axis network cameras and encoders.

You can define the area that Crowd Detection monitors for the number of people in the monitored area (capacity) and the percentage of the monitored area with people (occupancy). Crowd Detection can trigger alarms when it detects a specific capacity or occupancy.

To use Crowd Detection alarms in Symphony, you must add the camera with the Crowd Detection embedded video analytic to Symphony and create an alarm in Symphony for the camera.

The live view for Crowd Detection includes the following elements:

- Blue outlines mark crowds.
- Red outlines mark crowds that trigger alarms.

The plot for Crowd Detection displays the following information:

- The solid blue line shows the number of people in the monitored area (capacity).
- The solid orange line shows the percentage of the monitored area with people (occupancy).
- The dotted lines show the alarm threshold. Blue dotted lines show a capacity threshold and orange dotted lines show an occupancy threshold.



# Installation

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Install Crowd Detection on a camera using the camera Web interface.

You must install the version of Crowd Detection that matches the CPU of the camera (either Artpec-6 or Artpec-5 and earlier). For information on checking the CPU of a camera, see [KB10342](#).

## Requirements

Component	Requirements
Camera CPU	One of: <ul style="list-style-type: none"> <li>• ARTPEC-4</li> <li>• ARTPEC-5</li> <li>• ARTPEC-6</li> </ul>
Camera firmware	Supports Embedded Development Version 2.0
License	Senstar Crowd Detection (AIM-AX-CD)

## Install Crowd Detection

1. Download the Crowd Detection analytic package from <http://www.xnet.senstar.com/Xnet/>.
2. Log in to the camera home page.
3. Click **Settings**.
4. Click the **Apps** tab.
5. Click **Add**.
6. Click **Browse** and select the Crowd Detection analytic package.
7. Click **Install**.
8. On the **Apps** tab, click **Senstar Crowd Detection**.
9. Click the **Start and stop the app** toggle switch.

## Open Crowd Detection

1. Log in to the camera home page.
2. Click **Settings**.
3. Click the **Apps** tab.
4. Click **Senstar Crowd Detection**.
5. Click **Open**.
6. If this is your first time logging in, click **Accept** to accept the license and warranty terms.

## Add a license

1. In the administration interface for the embedded video analytic, click **Setup > License**.
2. Copy the camera MAC address.
3. Open <http://www.xnet.senstar.com/Xnet/> and click **Account Management**.
4. Under **Embedded Analytics**, click **Add**.
5. Type a name for the camera.
6. In the **MAC Address** field, copy the MAC address of the camera.
7. Select **I will add licenses to this camera**.

8. Click **Register Camera**.
9. Click **Embedded Analytics**.
10. Copy the license key.
11. In the administration interface for the embedded video analytic, click **Setup > License**.
12. In the **License Key** field, paste the license key.
13. Press **Submit**.

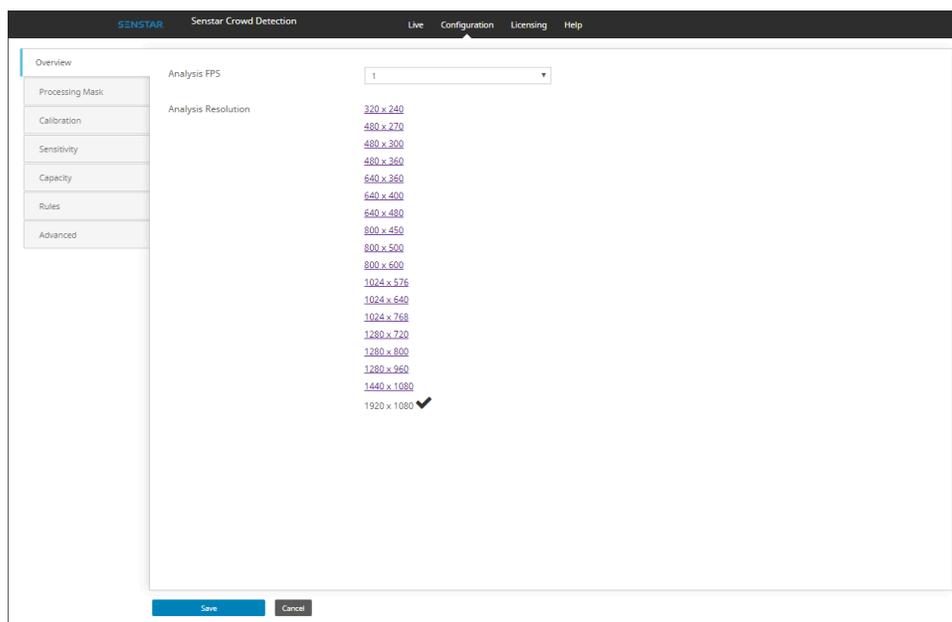
## Configuration on the camera

If you want to use the Crowd Detection embedded video analytic on the camera (without the Senstar Symphony Server), you configure the embedded video analytic using the administration interface in a browser.

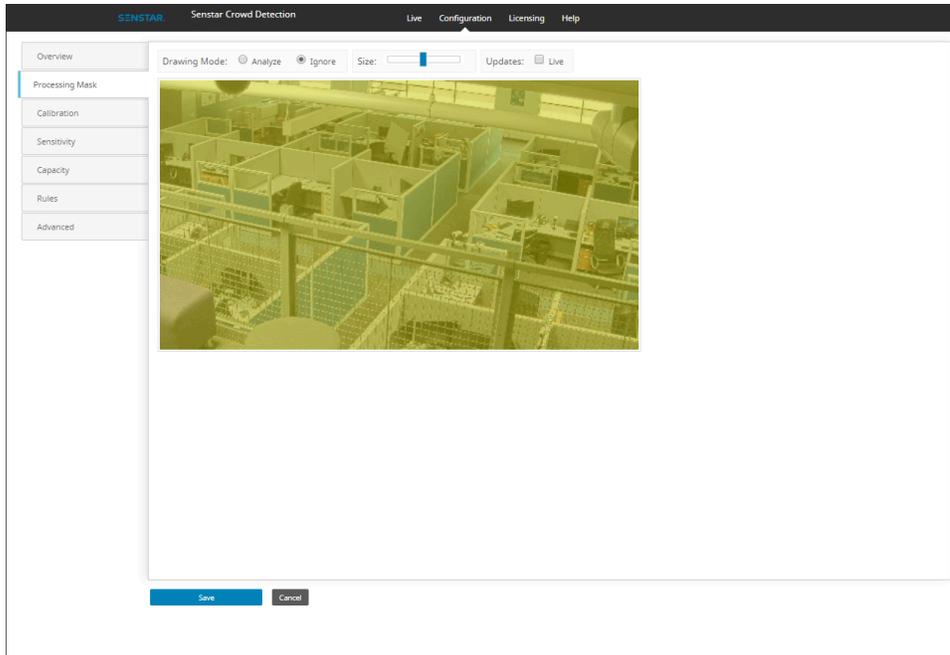
When you install Crowd Detection embedded video analytic on a camera, you can access the administration interface from the camera home page.

### Configure Crowd Detection on the camera

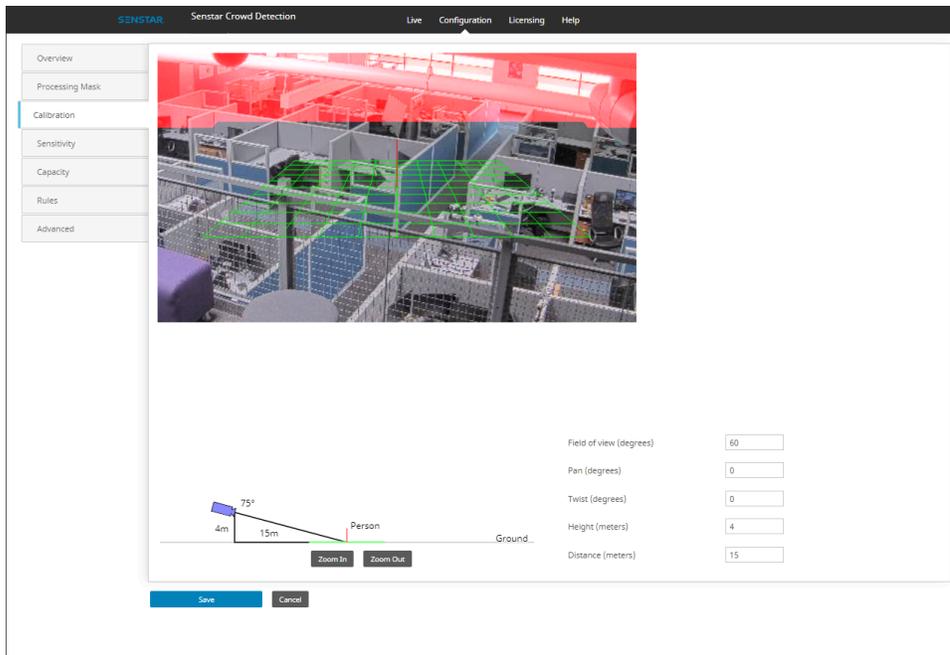
1. In the Crowd Detection administration interface, click **Configuration**.
2. On the **Overview** tab, configure general settings for the camera.



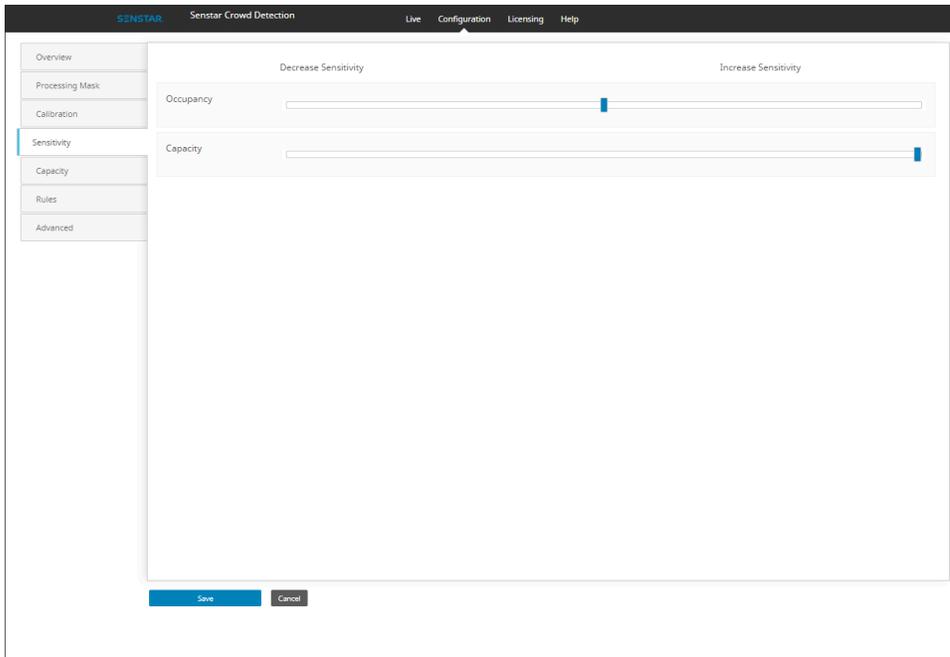
- On the **Processing Mask** tab, set the areas in the image that the camera ignores or analyzes.



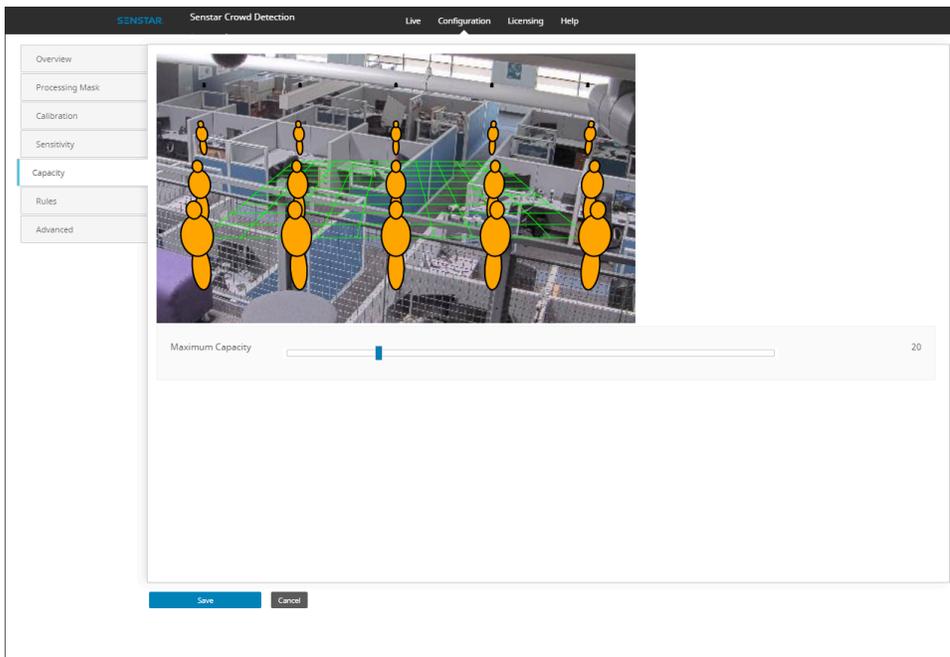
- On the **Calibration** tab, set the location and orientation of the camera.



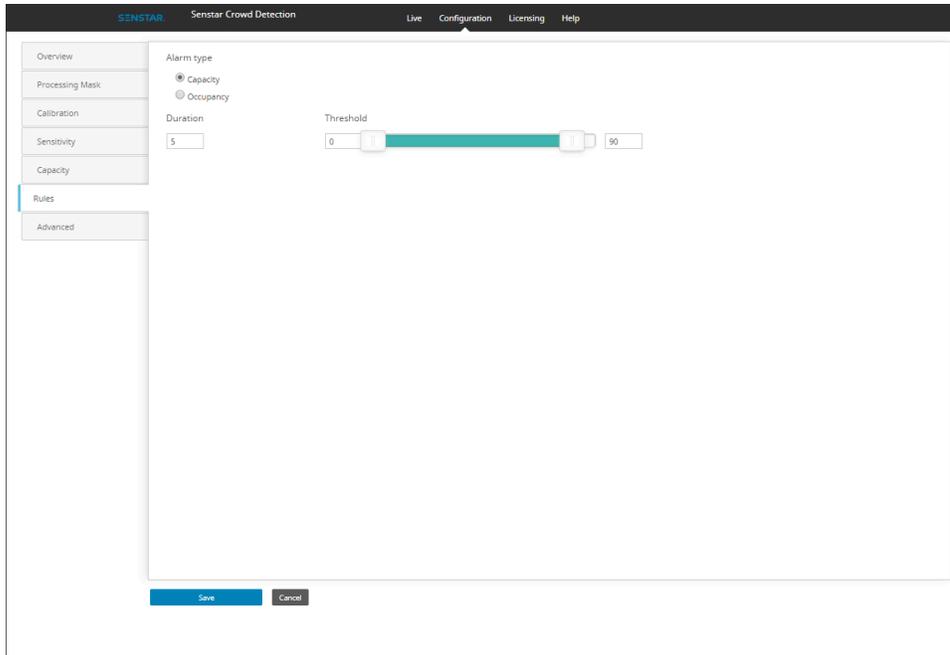
- On the **Sensitivity** tab, set the sensitivity of the camera to the percentage of the monitored area with people (occupancy) and the number of people in the monitored area (capacity).



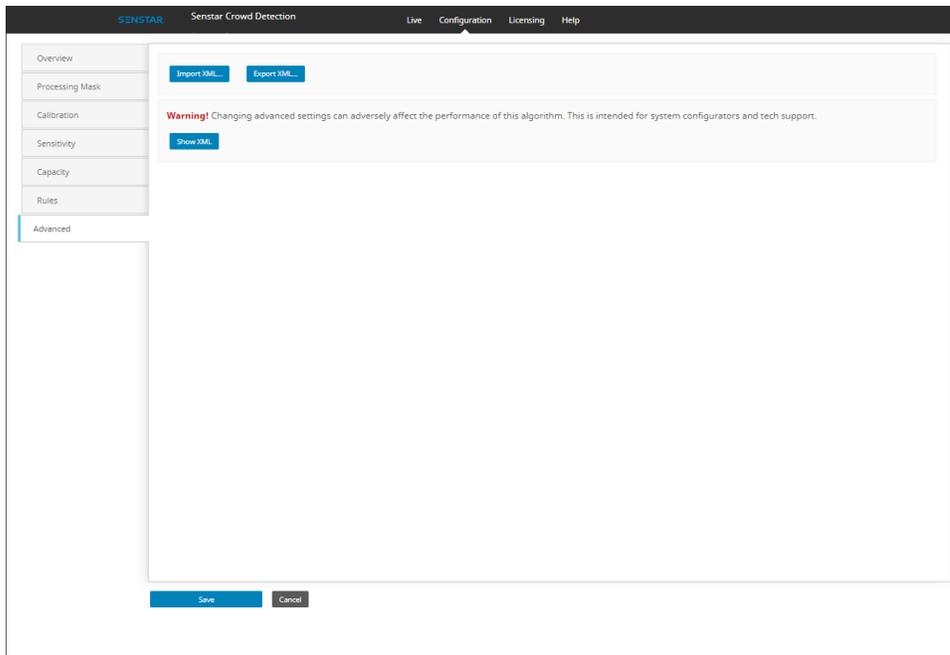
- On the **Capacity** tab, set the maximum capacity.



- On the **Rules** tab, set the criteria for alarms.



- On the **Advanced** tab, edit the XML file that contains the configuration settings.



- Click **Save**.

## Settings

### Overview

Setting	Description
Analysis FPS	Set the frames per second for the camera on which Crowd Detection is active. This value is fixed at 1 FPS.

Setting	Description
Analysis Resolution	Set the resolution for the camera on which Crowd Detection is active. Set this value so that people in the monitored area appear as at least 8 pixels in width.

### Processing Mask

Setting	Description
Drawing Mode	Select whether the paintbrush marks areas in the processing mask image to include (Analyze) or exclude (Ignore).
Size	Select the size of the paintbrush that you use in the processing mask image.
Updates	Select whether the image in the processing mask is static or live.

### Calibration

Setting	Description
Field of view	Define the horizontal field of view for the camera.
Pan	Type the angle (degrees) of horizontal rotation around the vertical axis of the camera.
Twist	Type the angle (degrees) of rotation around the long axis of the camera.
Height	Set the height (meters) on the camera. You can also adjust the height by dragging the camera in the layout diagram.
Distance	Set the distance (meters) between the camera and the front of the monitored area. You can also adjust the distance by dragging the camera in the layout diagram.

### Sensitivity

Setting	Description
Occupancy	Set how sensitive the camera is when assessing the percentage of the monitored area with people (occupancy). Decreasing the sensitivity will decrease the occupied area and increasing the sensitivity will increase the occupied area.
Capacity	Set how sensitive the camera is when assessing the number of people in the monitored area (capacity). Decreasing the sensitivity will decrease the number of detected people and increasing the sensitivity will increase the number of detected people.

### Capacity

Setting	Description
Capacity	Use the slider to define the maximum number of people that can be in the monitored area.

## Rules

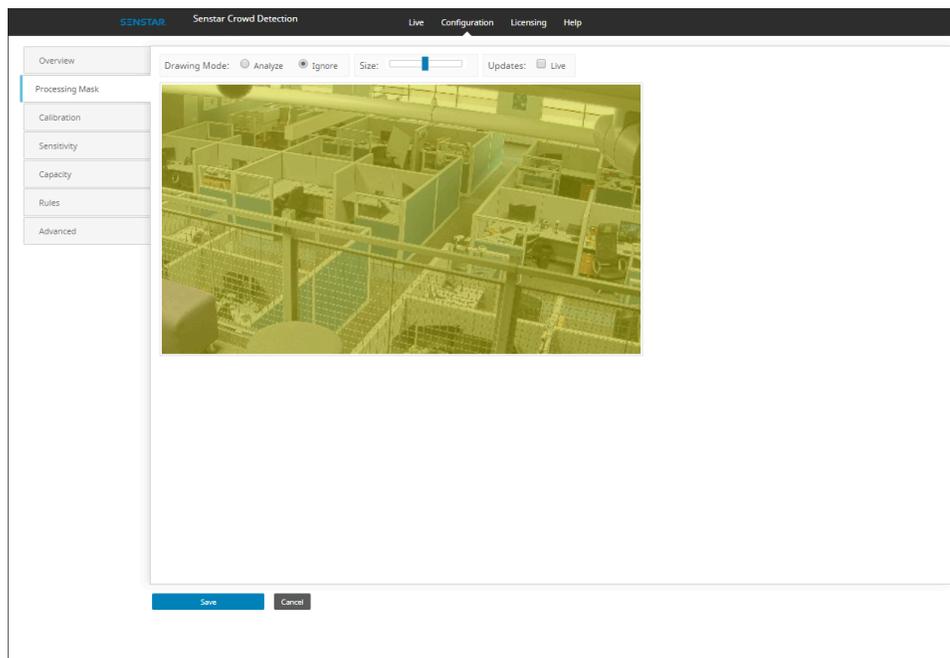
Setting	Description
Alarm	Select whether the event responds to capacity or occupancy.
Duration	Set the amount of time over which Crowd Detection averages values. A higher duration reduces the number of alarms but increases the possibility of missed alarms. A lower duration increases the number of alarms but increases the possibility of false alarms.
Threshold	Use the slider bar to define the values that trigger the event. Values that fall outside of the threshold trigger the event.

## Advanced

Setting	Description
Import XML	Import the configuration XML from a file.
Export XML	Export the configuration XML to a file.
Show XML	Show the configuration XML.

## Draw a processing mask

1. On the camera home page, click the embedded video analytic.
2. Click **Configuration > Processing Mask**.

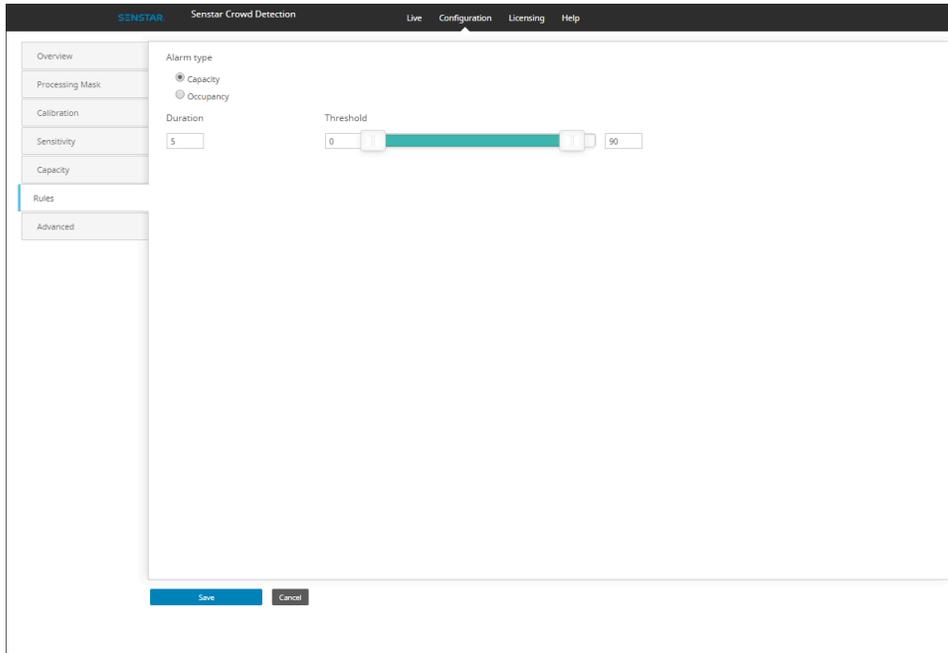


3. Perform one of the following tasks:
  - a) To define an area that the camera analyzes, select **Analyze**.
  - b) To define an area that the camera does not analyze, select **Ignore**.
 By default, the entire camera view is set to analyze.
4. Use the **Size** slider to set the size of the paint brush.
5. To use a live image to define the processing mask, select **Live**.

6. Use the mouse to draw the area on the camera view.
7. Click **Save**.

## Create an alarm on the camera

1. On the camera home page, click Crowd Detection.
2. Click **Configuration > Rules**.



3. In the **Alarm type** list, select whether the number of people in the monitored area (capacity) or the percentage of the monitored area with people (occupancy) triggers the alarm.
4. In the duration box, define the amount of time (in seconds) that a condition must exist to trigger an alarm.  
The default value is 5 seconds.
5. Using the slide bar, define the conditions that trigger an alarm. Values that fall outside of the slider bar trigger an alarm.
6. Click **Save**.

## Start or stop an embedded video analytic

1. Log in to the camera home page.
2. Click **Settings**.
3. Click the **Apps** tab.
4. Click the embedded video analytic.
5. Click the **Start and stop the app** toggle switch.

## Reset Crowd Detection

1. In the Crowd Detection administration interface, click **Help**.
2. Click **Reset to Factory Defaults**.

# Configuration on the Senstar Symphony Server

If you want to use the Crowd Detection embedded video analytic with the Senstar Symphony Server, you configure the embedded video analytic in the Senstar Symphony Server configuration interface.

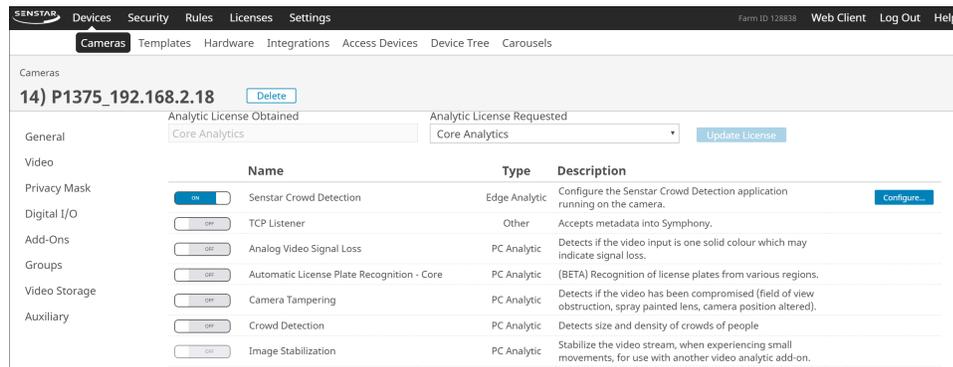
When you install Crowd Detection embedded video analytic on a camera and add that camera to the Senstar Symphony Server, you can access the configuration page in the Senstar Symphony Server configuration interface.

## Configure Crowd Detection on the Senstar Symphony Server

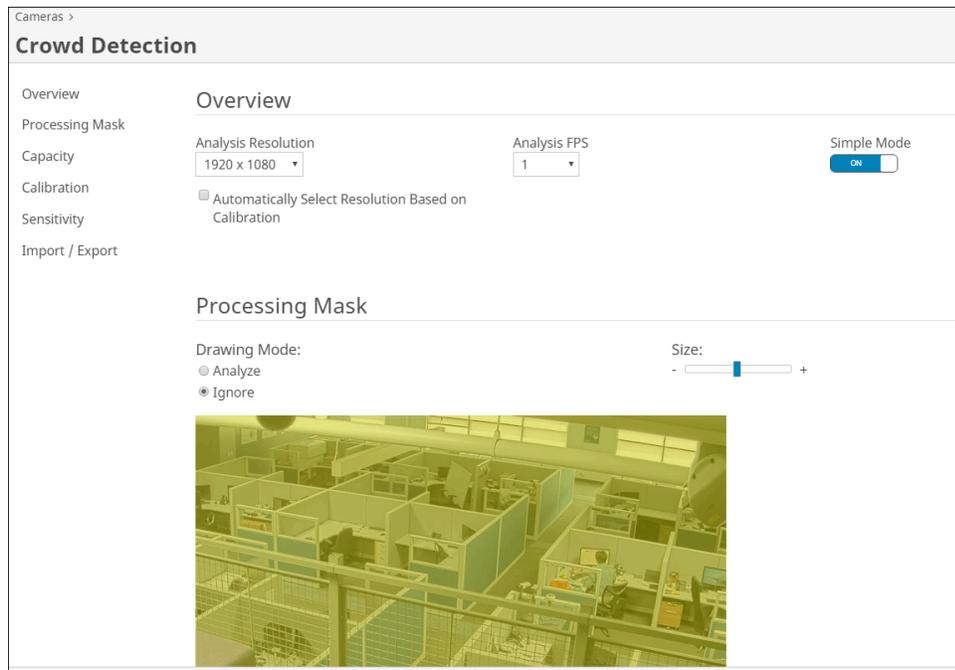
If you add a camera with the Crowd Detection embedded video analytic to the Senstar Symphony Server, you configure the embedded video analytic in the Senstar Symphony Server configuration interface.

To configure Crowd Detection, you should use an image that includes at least one person from the camera that you are configuring. Adjust the settings so that the reference people and the grid lines in the calibration image match the scene. You can move and add reference people in the calibration image.

1. In the server configuration interface, click **Devices > Cameras**.
2. Select the camera and click **Edit**.
3. In the **Add-Ons** list, turn Crowd Detection on and click **Configure**.



- On the Crowd Detection page, define the Overview, Processing Mask, Capacity, Calibration, and Sensitivity settings.



- Click **OK**.

For information about how to configure an alarm for the Crowd Detection embedded video analytic on the Senstar Symphony Server, see the Senstar Symphony User Guide.

## Events

Events define the condition that must exist for a rule to trigger an alarm in Symphony.

### Create an event

You can create an event that triggers a rule in Symphony.

When Symphony receives input from a device, it can trigger a rule. Different devices can trigger rules in different ways. For additional information on devices, see the manufacturer's documentation.

- In the Symphony server configuration interface, click **Rules > Events**.
- Click **New Event**.
- Type a name for the event.
- To add a device, perform the following tasks:
  - Click **Add Devices**.
  - Select the device.
  - Click **OK**.
- Perform one of the following tasks:
  - If you add a camera, select the video engine and configure how it triggers a rule.
  - If you add a metadata device, select the input and configure how it triggers a rule.
  - If you add an access control device, select the readers and inputs, and configure how they trigger a rule.
- Click **Save**.

## Crowd Detection event settings

The event settings for Crowd Detection are visible when you select it as the video engine for an event.

Setting	Description
Alarm type	Select whether the event responds to capacity (number of people) or occupancy (area occupied by people).
Duration	Set the amount of time over which Crowd Detection averages values. A higher duration reduces the number of alarms but increases the possibility of missed alarms. A lower duration increases the number of alarms but increases the possibility of false alarms.
Threshold	<p>Use the slider bar to define the values that trigger the event. Values that fall outside of the threshold trigger the event.</p> <p>For the capacity alarm type, the slider represents the percentage of the maximum capacity that you configure for the Crowd Detection video analytic.</p> <p>For the occupancy alarm type, the slider represents the percentage of the scene (defined by the processing mask) occupied by people.</p>

## Legal information

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